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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,480	09/29/2005	Terrence Kolenc	22188/07058	4310
24024 7590 05/01/2007 CALFEE HALTER & GRISWOLD, LLP 800 SUPERIOR AVENUE SUITE 1400 CLEVELAND, OH 44114			EXAMINER FRISTOE JR, JOHN K	
			ART UNIT 3753	PAPER NUMBER
			MAIL DATE 05/01/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/551,480

Applicant(s)

KOLENC ET AL.

Examiner

John K. Fristoe Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24, 26-40 and 43-73 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24, 26-40 and 43-73 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/05/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: “the valve seat being substantially free from carbides” recited in claim 8 and “at least some portion of the valve is carburized” recited in claim 51 are not supported by the specification.

2. The use of the trademark ELGILOY has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 45 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 45 recites the limitation ELGILOY in line 1. It is important to recognize that a trademark or trade name is used to identify a source of goods, and not the goods themselves. If a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, then the claim does not comply with the requirements of 35 USC

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112, second paragraph (see MPEP 2173.05(u)). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6, 11-13, 15, 27-30, 34, 60, and 64 rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,131,627 (Kolenc). Kolenc discloses a diaphragm valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion (108) into the valve body (b).

7. Claims 17-23 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 6,357,339 (Ejiri). Ejiri discloses a diaphragm comprising a fluid passageway (12), a valve body (11), a diaphragm (15), a valve seat (13) flush with the fluid passageway (12), wherein the valve seat (12) forms a continuous surface, wherein the seat (13) on the same axis as the fluid passageway (12), a sealing surface (upper portion of element 13), one or more protrusions

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(surrounds element 13 in figure 1), and wherein at least a portion of the valve seat (13) is hardened (the valve seat is hard with respect to softer materials).

8. Claims 43, 47, 49, 53, 54, and 56-59 and 45 as far as it is definite, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 5,851,004 (Wu et al.). Wu et al. disclose a diaphragm valve comprising a fluid passageway (14, 30), a valve body (12), a metal diaphragm (40), a harder metal valve seat (28), wherein the diaphragm is Eigiloy (col. 7, line 5), wherein the valve seat (28) is hardened (the metal is harder is respect to softer materials), one or more protrusions (below the lead line for element 28 is figure 3) that are angled with respect to the center radius of the valve seat (28), and wherein the interior of the valve seat (28) is flush and the same axis as the fluid passageway (14, 30).

9. Claims 65 and 66 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 3,592,440 (McFarland). McFarland discloses a valve seat comprising a generally annular seat body (28, 30) made from stainless steel (col. 4, line 69), a thin layer of polymeric material (col. 4, lines 60-63), and wherein the polymeric material is applied to the sealing surface (col. 4, lines 60-63).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,131,627 (Kolenc) in view of U.S. Pat. No. 6,357,339 (Ejiri). Kolenc discloses a diaphragm

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valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion (108) into the valve body (b) but lacks the interior surface of the valve seat being flush with the fluid passageway. Ejiri teaches a diaphragm comprising a fluid passageway (12), a valve body (11), a diaphragm (15), a valve seat (13) flush with the fluid passageway (12), wherein the valve seat (12) forms a continuous surface, wherein the seat (13) on the same axis as the fluid passageway (12), a sealing surface (upper portion of element 13), one or more protrusions (surrounds element 13 in figure 1), and wherein at least a portion of the valve seat (13) is hardened (the valve seat is hard with respect to softer materials). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Kolenc by making the interior surface of the valve seat flush with the fluid passageway as taught by Ejiri in order to decrease the risk of fluid disturbances as it passes by the valve seat.

12. Claims 7, 8, 31, 33, 35-37, 39, 40, and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,131,627 (Kolenc) in view of U.S. Pat. No. 5,211,373 (Baker). Kolenc discloses a diaphragm valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve

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seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion (108) into the valve body (b) but lacks the valve seat being case hardened. Baker teaches a valve assembly comprising a valve seat (50) that is case hardened having a hardness of greater than 55 Rockwell C (col. 4, lines 46-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Kolenc by case hardening the valve seat as taught by Baker in order to improve the strength and lifespan of the valve seat.

13. Claims 10, 14, 32, 61, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,131,627 (Kolenc) in view of U.S. Pat. No. 6,341,758 (Shih et al.). Kolenc discloses a diaphragm valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion

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(108) into the valve body (b) but lacks the valve seat is harder than the diaphragm. Shih et al. teach a diaphragm valve comprising a diaphragm (13) and a harder valve seat (211). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Kolenc by making the seat harder than the diaphragm as taught by Shih et al. in order to improve sealing in the valve closed position.

14. Claims 16, 67-69, and 71-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,131,627 (Kolenc) in view of U.S. Pat. No. 3,592,440 (McFarland). Kolenc discloses a diaphragm valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion (108) into the valve body (b) but lacks the valve seat being covered by a thin layer of polymeric material. McFarland discloses a valve seat comprising a generally annular seat body (28, 30) made from stainless steel (col. 4, line 69), a thin layer of polymeric material (col. 4, lines 60-63), and wherein the polymeric material is applied to the sealing surface (col. 4, lines 60-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Kolenc by coating the seat with a thin layer of polymeric material as taught by McFarland in order to seal the valve against the seat more effectively.

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15. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,357,339 (Ejiri) in view of U.S. Pat. No. 5,211,373 (Baker). Ejiri discloses a diaphragm comprising a fluid passageway (12), a valve body (11), a diaphragm (15), a valve seat (13) flush with the fluid passageway (12), wherein the valve seat (12) forms a continuous surface, wherein the seat (13) on the same axis as the fluid passageway (12), a sealing surface (upper portion of element 13), one or more protrusions (surrounds element 13 in figure 1), and wherein at least a portion of the valve seat (13) is hardened (the valve seat is hard with respect to softer materials) but lacks the valve seat being case hardened. Baker teaches a valve assembly comprising a valve seat (50) that is case hardened having a hardness of greater than 55 Rockwell C (col. 4, lines 46-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Ejiri by case hardening the valve seat as taught by Baker in order to improve the strength and lifespan of the valve seat.

16. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 6,357,339 (Ejiri) in view of U.S. Pat. No. 6,341,758 (Shih et al.). Ejiri discloses a diaphragm comprising a fluid passageway (12), a valve body (11), a diaphragm (15), a valve seat (13) flush with the fluid passageway (12), wherein the valve seat (12) forms a continuous surface, wherein the seat (13) on the same axis as the fluid passageway (12), a sealing surface (upper portion of element 13), one or more protrusions (surrounds element 13 in figure 1), and wherein at least a portion of the valve seat (13) is hardened (the valve seat is hard with respect to softer materials) but lacks the valve seat is harder than the diaphragm. Shih et al. teach a diaphragm valve comprising a diaphragm (13) and a harder valve seat (211). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of

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Ejiri by making the seat harder than the diaphragm as taught by Shih et al. in order to improve sealing in the valve closed position.

17. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,131,627 (Kolenc) in view of U.S. Pat. No. 5,211,373 (Baker) as applied to claim 35 above, and further in view of U.S. Pat. No. 3,592,440 (McFarland). Kolenc modified above, discloses a diaphragm valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion (108) into the valve body (b) but lacks the valve seat being covered by a thin layer of polymeric material. McFarland discloses a valve seat comprising a generally annular seat body (28, 30) made from stainless steel (col. 4, line 69), a thin layer of polymeric material (col. 4, lines 60-63), and wherein the polymeric material is applied to the sealing surface (col. 4, lines 60-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Kolenc by coating the seat with a thin layer of polymeric material as taught by McFarland in order to seal the valve against the seat more effectively.

18. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,851,004 (Wu et al.) in view of U.S. Pat. No. 5,131,627 (Kolenc). Wu et al. disclose a

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diaphragm valve comprising a fluid passageway (14, 30), a valve body (12), a metal diaphragm (40), a harder metal valve seat (28), wherein the diaphragm is Eigiloy (col. 7, line 5), wherein the valve seat (28) is hardened (the metal is harder in respect to softer materials), one or more protrusions (below the lead line for element 28 is figure 3) that are angled with respect to the center radius of the valve seat (28), and wherein the interior of the valve seat (28) is flush and the same axis as the fluid passageway (14, 30) but lacks the valve seat being an insert. Kolenc teaches a diaphragm valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion (108) into the valve body (b). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Kolenc by making the valve seat an insert as taught by Kolenc in order to make the valve seat replaceable after the seat is worn.

19. Claims 46, 50, 51, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,851,004 (Wu et al.) in view of U.S. Pat. No. 5,211,373 (Baker). Wu et al. disclose a diaphragm valve comprising a fluid passageway (14, 30), a valve body (12), a metal diaphragm (40), a harder metal valve seat (28), wherein the diaphragm is Eigiloy (col. 7, line 5),

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wherein the valve seat (28) is hardened (the metal is harder in respect to softer materials), one or more protrusions (below the lead line for element 28 in figure 3) that are angled with respect to the center radius of the valve seat (28), and wherein the interior of the valve seat (28) is flush and the same axis as the fluid passageway (14, 30) but lacks the valve seat being case hardened.

Baker teaches a valve assembly comprising a valve seat (50) that is case hardened having a hardness of greater than 55 Rockwell C (col. 4, lines 46-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Wu et al. by case hardening the valve seat as taught by Baker in order to improve the strength and lifespan of the valve seat.

20. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,851,004 (Wu et al.) in view of U.S. Pat. No. 4,911,405 (Weissgerber). Wu et al. disclose a diaphragm valve comprising a fluid passageway (14, 30), a valve body (12), a metal diaphragm (40), a harder metal valve seat (28), wherein the diaphragm is Eigiloy (col. 7, line 5), wherein the valve seat (28) is hardened (the metal is harder in respect to softer materials), one or more protrusions (below the lead line for element 28 in figure 3) that are angled with respect to the center radius of the valve seat (28), and wherein the interior of the valve seat (28) is flush and the same axis as the fluid passageway (14, 30) but lacks a ceramic valve seat. Weissgerber teaches a diaphragm valve comprising a diaphragm (10) and a ceramic (col. 3, lines 60-62) valve seat (1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve by making the seat ceramic as taught by Weissgerber in order to make the seat lighter and resistant to heat.

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21. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,851,004 (Wu et al.) in view of U.S. Pat. No. 3,592,440 (McFarland). Wu et al. disclose a diaphragm valve comprising a fluid passageway (14, 30), a valve body (12), a metal diaphragm (40), a harder metal valve seat (28), wherein the diaphragm is Eigiloy (col. 7, line 5), wherein the valve seat (28) is hardened (the metal is harder in respect to softer materials), one or more protrusions (below the lead line for element 28 is figure 3) that are angled with respect to the center radius of the valve seat (28), and wherein the interior of the valve seat (28) is flush and the same axis as the fluid passageway (14, 30) but lacks the valve seat being covered by a thin layer of polymeric material. McFarland discloses a valve seat comprising a generally annular seat body (28, 30) made from stainless steel (col. 4, line 69), a thin layer of polymeric material (col. 4, lines 60-63), and wherein the polymeric material is applied to the sealing surface (col. 4, lines 60-63). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Wu et al. by coating the seat with a thin layer of polymeric material as taught by McFarland in order to seal the valve against the seat more effectively.

22. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,131,627 (Kolenc) in view of U.S. Pat. No. 3,592,440 (McFarland) as applied to claim 67 above, and further in view of U.S. Pat. No. 6,357,339 (Ejiri). Kolenc modified above, discloses a diaphragm valve comprising a fluid passageway (10, 12), a valve body (B), a diaphragm (32), a valve seat (102), one or more protrusions (108) on the outer edge of the valve seat (102), wherein a portion (106) of the valve body (b) is crimped against the protrusions (108), wherein the valve seat (102) is an insert, a recess (104), a raised sealing surface (110), wherein the one or more

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protrusions (108) is angled, wherein the one or more protrusions is angled away from the seat bottom (the protrusion extends away from the seat bottom), wherein a portion of the valve seat (102) is hardened (hard with respect to softer materials), and a method of making a valve seat comprising providing a valve seat (102), a protrusion (108) and digging the protrusion (108) into the valve body (b) but lacks the interior surface of the valve seat being flush with the fluid passageway. Ejiri teaches a diaphragm comprising a fluid passageway (12), a valve body (11), a diaphragm (15), a valve seat (13) flush with the fluid passageway (12), wherein the valve seat (12) forms a continuous surface, wherein the seat (13) on the same axis as the fluid passageway (12), a sealing surface (upper portion of element 13), one or more protrusions (surrounds element 13 in figure 1), and wherein at least a portion of the valve seat (13) is hardened (the valve seat is hard with respect to softer materials). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the diaphragm valve of Kolenc by making the interior surface of the valve seat flush with the fluid passageway as taught by Ejiri in order to decrease the risk of fluid disturbances as it passes by the valve seat.

Conclusion

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 6,786,471 (Nakata et al.) disclose a diaphragm valve having a seat insert.

U.S. Pat. No. 6,698,720 (Bouley et al.) discloses a member crimped in a valve assembly.

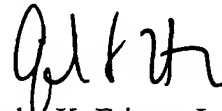
24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John K. Fristoe Jr. whose telephone number is (571) 272-4926.

The examiner can normally be reached on Monday-Friday, 7: 00 a.m-4: 30 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric S. Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John K. Fristoe Jr.
Examiner
Art Unit 3753

JKF